



# Teacher Research Academy (TRA)

## Fusion — Astrophysics

The Fusion - Astrophysics Research Academy prepares teachers to conduct research in electromagnetic radiation and astrophysical studies with their students. The program is offered in four levels where each level builds on the knowledge and experience of the preceding level progressing the teacher from novice to mastery. The instruction provides teachers with a context to explain to students how science is applied, and includes hands-on activities using the science and technology of the discipline, lectures by practicing scientists, tours of research facilities, opportunities to network with researchers and peers.

Teachers will participate in instruction to develop their understanding of fusion research, astrophysics, and atomic physics. They will enhance their understanding of the properties of electromagnetism, nuclear physics, classical gravitational physics and General Relativity through hands-on activities. They will learn to use spectroscopy as a research tool to develop knowledge about inaccessible objects like the Sun and the interior of fusion reactors. These instructional materials are aligned with the California and National Science Standards

### WHEN:

**June 22 – Level - 1:** Three days of instruction. Participants gain skills and knowledge generally consistent with the requirements to teach advanced middle and high school science.

**July 6 - Level - 2:** Five days of instruction. Participants gain skills and knowledge generally consistent with the requirements to teach advanced placement and college preparatory courses.

**July 13 – Level - 3:** Five days of instruction preparing teachers to work in a mentored research experience.

**June 15 - Level - 4:** Six-week mentored research experience. Teachers receive \$4,000 stipend. Prerequisite completion of Levels 1, 2, and 3.

**WHERE:** Lawrence Livermore National Laboratory, Livermore, CA

**REGISTRATION:** Register on-line at <http://education.llnl.gov/academies>

**REGISTRATION FEE:** \$15.00 for each registration.

### WHAT TEACHERS GET:

- Increased understanding of science and technology.
- Experience using scientific equipment to perform standards aligned experiments.
- Preparation to guide student research projects.
- Instruction binder with classroom lessons.

### MASTER OF SCIENCE IN EDUCATION:

Participants in the Teacher Research Academy can earn graduate course credit through the California State University (CSU) East Bay toward a Master of Science in Education degree, Curriculum Option, or extension credit.

***PLEASE FORWARD TO INTERESTED TEACHERS***